CHAPTER 6

STANDARDS AND SPECIFICATIONS.
EROSION AND SEDIMENT CONTROL.

6.01 EROSION CONTROL

1. REQUIREMENTS

Erosion control measures shall be designed in conformance with the Urban Drainage and Flood Control District (**UDFCD) Urban Storm Drainage Criteria Manual (as amended), hereon referred to as the "*Manual*".** All land-disturbing activities within the City of Brighton shall be in compliance with applicable Colorado Discharge Permit System (CDPS) Stormwater, Colorado Air Quality Control Commission regulations (as amended), and the NPDES Phase II storm water regulations (as amended), when applicable. If one or more acres of land will be disturbed, a Stormwater Permit for Construction Activities from the Water Quality Control Division of Colorado Department of Public Health and Environment (CDPHE) must be obtained and evidence of the permit must accompany an application for a Grading Permit. All *earth disturbing activities*[(1)] within the City must comply with the City's permitting ordinances and requirements and conform to erosion, sediment control and drainage ordinances and regulations.

2. SUBMITTAL

A statement describing the erosion control methods shall be submitted as part of the preliminary and final drainage reports for all developments. Grading and Erosion and Sediment Control construction drawings will not be approved prior to approval of the final drainage report. A detailed erosion and sediment control plan [(2)] must accompany the grading plan and approved drainage report for all development or redevelopments disturbing one or more acres of land *or land that is part of a larger common development* [(3)]

If grading or other earth disturbing activities are to be made on one (1) or more acres or land that is part of a larger common development, an Erosion and Sediment Control Plan shall be submitted to, and approved by, the Director of Public Works or his/her designee along with a copy of the CDPHE issued Construction Site Stormwater Permit cover letter evidencing the state issued permit certification number, prior to receiving a grading permit and/or an Erosion and Sediment Control Permit as required in Chapter 14, Stormwater of the Brighton Municipal Code, as amended.

3. EROSION AND SEDIMENT CONTROL PLAN

An *Erosion and Sediment Control Plan* consisting of a written narrative report and a site plan map shall be submitted to the Director of Public Works or his/her designee for review and approval.

3.1 NARRATIVE REPORT

The narrative report shall contain, or refer to, the drainage report and include the following:

A. **Applicant Contact Information.** Name, address, and telephone number of the

applicant;

B. **Professional Engineer Contact Information.**
The name, address, and telephone number of the professional engineer preparing the Erosion and Sediment Control Plan, if different from the applicant.

C. **Project Description.** A brief description of the nature and purpose of the land disturbing activity; including the:

a. Total area of the site,

b. Area of disturbance involved, and

c. Project location including township, range, section, and quarter-section, or the latitude and longitude, of the approximate center of the project.

D. **Existing Site Conditions.** A description of the existing topography, vegetation, drainage, and any wetlands on the site;

E. **Adjacent Areas.** A description of neighboring areas identifying land uses, streams, lakes, wetlands, roads, and other features as required by the Director of Public Works, which might be affected by the land disturbance**;**

F. **Soils**. A brief description of the soils on the site including soil type and names, mapping unit, erodibility, permeability, hydrologic soil group, depth, texture, and soil structure;
(This information may be obtained from the soil report for the site, or, if available, from soils reports from adjacent sites if acceptable to the Director of Public Works.)

G. **Areas and Volumes**. An estimate of the quantity (in cubic yards) of excavation and fill involved, and the surface area in acres of the proposed disturbance;

H. **Erosion and Sediment Control Measures.** A description of the methods described in the *Manual* which will be used to control erosion and sediment on the site;
(Refer to the *Manual* for installation details and design criteria for approved Erosion and Sediment Control Best Management Practices.)

I. **Project Schedule.** A specified schedule indicating the anticipated starting and completion dates of the site grading and/or construction sequence as required by the Director of Public Works, including the date of anticipated installation and removal of erosion and sediment control measures and the period during which each area will be exposed prior to the completion of temporary erosion and sediment control measures;

J. **Permanent Stabilization.** A brief description, including specifications, of how the site will be stabilized after construction is completed**;**

K. **Stormwater Management Considerations.** Explain how stormwater runoff from and through the site will be handled during construction and include a description of the post-construction stormwater quality control measures to be included as a part of the site development;

L. **Maintenance.** A schedule of regular inspections during construction, a plan for the repair of erosion and sediment control structures as necessary, and a description of proposed routine sediment basin maintenance;

M. **Projected Cost of Best Management Practices.** The estimated total cost for installation and maintenance of the required temporary soil erosion and sediment control measures to assist the Director of Public Works to determine surety or financial guarantee requirements for the proposed plan;

N. **Calculations.** Any calculations made for the design of sediment basins, diversions, waterways, runoff and stormwater detention basins (if applicable) and similar structures or improvements as may be required by the Director of Public Works;

O. **Other Information Required.** Other information or data as may be required by the Director of Public Works or his/her designee;

P **Financial Guarantee.** A surety, bond, letter-of-credit, escrow account or other financial guarantee acceptable to the City of Brighton submitted in an amount sufficient to install and maintain for a period of one year the temporary and permanent erosion and sediment control measures described in the plan;

Q. **Signature Page.** A signature page for the applicant, owner or developer acknowledging review and acceptance of responsibility, and a statement by the Professional Engineer acknowledging responsibility for the preparation of the *Erosion and Sediment Control Plan*, and

R. **Certification Statement.** A statement as follows:

"This Erosion and Sediment Control Plan has been placed in the City of Brighton file for this project. The Plan fulfills the Urban Drainage and Flood Control District's technical criteria and the criteria for erosion control and requirements of City of Brighton to the best of my knowledge. I understand that additional erosion control measures may be needed if unforeseen erosion problems occur or if the submitted Plan does not function as intended. The requirements of this Plan shall run with the land and be the obligation of the land owner until such time as the plan is properly completed, modified or voided"

3.2 SITE PLAN

The site plan shall include the following:

A.. A general location map at a scale of 1-inch to 1000-feet to 1-inch to 8000-feet indicating the general vicinity of the site location.

B. The property lines for the site on which the work will be performed.

C. The Erosion and Sediment Control Plan at a scale of 1-inch to 20-feet up to 1-inch to 200-feet. The plan may be placed on the site drainage plan if it can be clearly presented. The Erosion and Sediment Control Plan shall include:

(1) Existing topography at one- or two-foot contour intervals. The map should extend a minimum of 100-feet beyond the property line;

(2) Proposed topography at one- or two-foot contour intervals. The map should show elevations, dimensions, location, extent, and the slope of all proposed grading, including building site and driveway grades, if known;

(3) Location of any existing structures or hydrologic features on the site.

(4) Location of all structures or natural features on the land adjacent to the site and within a minimum of 100 feet of the site boundary line, including street gutter, storm sewer, channel, or other waters receiving storm runoff from the site;

(5) Location of all proposed structures and development on the site, if known;

(6) Identification of areas which are to be cleared and graded;

(7) Identification of areas designated for topsoil and subsoil storage;

(8) Identification of areas designated for equipment, fuel, lubricants, chemical

and waste storage;

(9) Location of temporary roads designated for use during the construction period;

(10) Plans of all drainage features, paved areas, retaining walls, cribbing, planting, temporary or permanent soil erosion control measures, or other features to be constructed in connection with, or as a part of, the proposed work together with a map showing the drainage area of land tributary to the site and estimated 2-year runoff of the area served by all drains. All erosion control measures should be depicted using the standard map symbols given in Figures 6-1 and 6-1A;

(11) Design drawings of sediment controls, temporary diversions, and any practices proposed for use and are not referenced in these criteria;

(12) Other information or data as may be reasonably required by the Director of Public Works;

(13) A signature page for the applicant, owner or developer acknowledging review and acceptance of responsibility, and a statement by the Professional Engineer acknowledging responsibility for the preparation of the *Erosion and Sediment Control Plan*, and

(14) A statement as follows:

"This Erosion and Sediment Control Plan has been placed in the City of Brighton file for this project. The Plan fulfills the Urban Drainage and Flood Control District's technical criteria and the criteria for erosion control and requirements of City of Brighton to the best of my knowledge. I understand that additional erosion control measures may be needed if unforeseen erosion problems occur or if the submitted Plan does not function as intended. The requirements of this Plan shall run with the land and be the obligation of the land owner until such time as the plan is properly completed, modified or voided"

3.3 APPROVAL OF EROSION AND SEDIMENT CONTROL PLAN.

An Erosion and Sediment Control Plan is required prior to issuance of an Overlot Grading or Erosion and Sediment Control Permit by the City of Brighton. The final Erosion and Sediment Control Plan shall be consistent with a Drainage Report considered acceptable to the Director Public Works or his/her designee. Approval of the Erosion and Sediment Control Plan does not imply acceptance or approval of Drainage Plans, Utility Plans, Street or Road Plans, Design of Retaining Walls, or any other aspect of site development.

3.4 EXEMPTIONS AND VARIANCES .

A. **Exemptions.** The following are exempt from the erosion control planning process, however, exempting the owner from preparing an erosion control plan and applying for a grading permit does not exempt the owner from controlling erosion of soil at each construction site through the use of the techniques described in the Public Works *Standards and Specifications Manual* (as amended) and *Volume 3 of the Urban Drainage*

and Flood Control Criteria Manual:

(1) Agricultural use of land.

(2) Grading or an excavation below finished grade for basements, footings, retaining walls, or other structures on plots zoned R1 - R3 of less than one (1) acre in size unless required otherwise.

(3) A sidewalk or driveway authorized by a valid permit.

(4) Land-disturbing activities involving less than one (1) acre of disturbed area.

(5) Individual lots involving less than one (1) acre of disturbed area in a larger subdivision project shall not be considered separate development projects, but rather as a part of the subdivision development as a whole. It will be the responsibility of the homebuilder to conform to all requirements of the approved Erosion and Sediment Control Plan for the subdivision. As part of any Building Permit for which a specific erosion control plan is not required, the following statement must be included:

"We have reviewed the Erosion and Sediment Control Plan for (subdivision name) and agree to conform to all requirements contained therein and all erosion control requirements of the City of Brighton. We further agree to construct and maintain all erosion and sediment control measures required on the individual lot(s) subject to this Building Permit and/or in accordance with the provisions of the Erosion Control section of the Manual of the Urban Drainage and Flood Control District."

(6) Underground utility construction including the installation, maintenance, and repair of all utilities under hard-surfaced roads, streets, or sidewalks provided such land-disturbing activity is confined to the area which is hard-surfaced and provided that runoff and erosion from soil stockpiles are confined and will not enter the drainage system.

(7) Gravel, sand, dirt or topsoil removal as authorized pursuant to approval of the Colorado Mined Land Reclamation Board, provided said approval includes an erosion and sediment control plan that meets the minimums specified.

(8) Projects having a period of exposure (from time of land disturbance until permanent erosion control measures are installed) of less than 14 days.

(9) Where the owner certifies in writing to the Director of Public Works and the Director of Public Works or his/her designee agrees in writing that the planned work and the final structures or topographical changes will not result in or contribute to soil erosion or sedimentation and will not interfere with any existing drainage course in such a manner as to cause damage to any adjacent property or result in the deposition of debris or sediment on any public way, will not present any hazard to any persons or property, and will have no detrimental influence upon the public welfare or upon the total development of the watershed.

B. **Variances** – The Director of Public Works or his/her designee has the authority to waive or modify any criteria and/or practices specified within the *Manual* which relate to the application of specific erosion and sediment control practices if the Director determines that the criteria and/or practices are inappropriate or do not apply to existing

site conditions and by granting the variance:

(1) That storm and surface waters will be properly drained and controlled, pollution will be reduced, and the health, safety, property and welfare of landowners and inhabitants within the City will be safeguarded and protected;

(2) The variance will not create a hazard to life, health, and property;

(3) As a result of the variance being granted there will not be untimely, indiscriminate, or unnecessary removal or destruction of trees and groundcover;

(4) The surface water runoff will be minimized and properly managed;

(5) The variance will not contribute to uncontrolled diversion, flooding or siltation in the City's streams, rivers, lakes, storm drainage systems, and public roadside improvements;

(6) The variance will not increase the risk of land slides, erosion, and unstable building sites; and to insure prompt development, restoration, replanting, and effective erosion control of lands after clearing and grading; and

(7) The granting of the variance will ensure that the use of the site is consistent with Chapter 14, Stormwater, Brighton Municipal Code and the Brighton's Land Use and Development Regulations and Guidelines, as the same may be amended from time to time.

Application for a variance shall be made submitted prior to or with the initial *Erosion and Sediment Control Plan* submission, and shall include:

(8) A specification of the criteria and/or practice from which the applicant seeks a variance;

(9) The justification for the variance;

(10) Proposed alternate criteria, practice or standard measures to be used in lieu of the criteria.

The Director may grant the variance, grant the variance with conditions or deny the variance.

4. EROSION CONTROL MEASURES

4.1 Detailed erosion control measures must be provided to protect the following:

A. Inlets and culverts;
B. Drainage ways having channel flow lines which exceed 1% slope;
C. Streams or other water bodies which are immediately adjacent to land disturbed by construction activity;
D. Cut and fill areas where exposed soil exists;
E. Properties and improved streets adjacent to construction activity;
F. Other details, projects or activities as required by the Public Works Director or his/her designee.

4.2 Temporary erosion control measures such as sediment traps, hay bales or silt fences must be properly placed in accordance with the approved grading plan prior to any earthmoving on site. Erosion control measures shall be kept in good repair and fully functional until the erosion potential from the site no longer exists. Permanent erosion control (sod, seed,

mulching, etc.) is generally expected to be in place prior to the request for a Certificate of Occupancy.

6.02 PUBLIC NOTICE SIGN REQUIREMENTS.

All developments disturbing one acre or greater to post a sign that will provide public notice of the developments requirement to adhere to stormwater run-off and sediment control plans. Within 24 hours of receiving a grading permit from the City, the developer shall post the sign at the entrance of the development in an area accessible to the public which contains the following information:

(1) The contact information for the Public Works Director or his/her designee;
(2) The developer's name;
(3) The project name;
(4) A brief description of the project; and
(5) The Grading Permit Application date.

The sign shall be not less than three (3) feet off of the ground and should be no smaller than 11" x 17".

See Figure 6 -2 for a template of the sign.

6.03 EROSION AND SEDIMENT CONTROL CRITERIA

The following is a summary of erosion and sediment control activities as described in the Erosion Control section of the *Urban Drainage and Flood Control District Criteria Manual* (as amended). Refer to Erosion Control section of the of the *Manual* for a complete listing of erosion and sediment control activities and criteria .

A. **Erosion Control**. Permanent or temporary soil surface stabilization shall be applied to disturbed areas and soil stockpiles as soon as possible but no later than 14 days after final grade is reached on any portion of the site. Soil surface stabilization shall also be applied within 14 days to disturbed areas that may not be at final grade but will remain dormant (undisturbed) for longer than an additional 30 days.

B. **Surface Roughening**. Surface roughening shall be performed after final grading to create depressions two to four inches deep and four to six inches apart.

C. **Mulching.** All disturbed areas shall be properly mulched, or seeded and mulched, within 14 days after final grade is reached on any portion of the site not otherwise permanently stabilized.

D. **Revegetation**. A viable vegetative cover shall be established within one year on all disturbed areas and soil stockpiles not otherwise permanently stabilized. Vegetation is not considered established until a ground cover is achieved which, in the opinion of the Director of Public Works, is sufficiently mature to control soil erosion and can survive severe weather conditions.

E. **Temporary Revegetation.** Temporary revegetation is required on all disturbed areas having a period of exposure prior to final stabilization of one year to two years. All temporary seeding shall be properly mulched.

F. **Permanent Revegetation**. Permanent revegetation is required on all disturbed areas having a period of exposure greater than two years, or for an indeterminate length of

time. A perennial grass mix shall be planted and mulched.

G. **Roads and Soil Stockpiles**. Road cuts, road fills, and parking lot areas shall be covered as early as possible with the appropriate aggregate base course where this is specified as part of the pavement. This practice is not needed when final construction of roads will take place within 30 days of reaching final subgrade level.

H. **Non-Paved Road Stabilization.** All non-paved portions of roads shall be seeded and mulched as soon as possible after final grading has occurred, but in no case later than 14 days after grading has been completed.

I. **Stabilizing Stockpiles.** Soil stockpiles expected to be in place longer than 60 days shall be seeded with a temporary grass cover and mulched within 14 days after completion of stockpile construction.

J. **Stockpiles near Drainageways.** If stockpiles are located within 100 feet of a drainageway, additional sediment controls, such as a diversion dike or silt fence, shall be provided.

K. **Sediment Control**. Properties and roadways adjacent to a construction site shall be protected from eroded sediment being transported to them.

L. **Vehicle Tracking**. Whenever construction vehicles enter onto paved roads, provisions shall be made to prevent the transport of sediment (mud and dirt) by vehicles tracking onto the paved surface. Whenever sediment is transported onto a public road, regardless of the size of the site, the roads shall be cleaned at the end of each day.

M. **Slope Diversion Dikes**. Temporary diversion dikes shall be provided as required by the provisions of Section 4.2. Diversion dikes located above disturbed areas may be discharged to a permanent or temporary channel. Diversion dikes located midslope on a disturbed area shall discharge to temporary slope drain. Diversion dikes located at the base of a disturbed area shall discharge to a sediment trap or basin.

N. **Roads and Roadside Swales**. For road areas that are not paved within 30 days of final grading, and have not received early application of roadbase, rough-cut street controls shall be provided.

O. **Sediment Entrapment Facilities**. All runoff leaving a disturbed area shall pass through at least one sediment entrapment facility before it exits the site. Sediment entrapment facilities include straw bale barriers, silt fences, and sediment basins. The criteria for selection and use of sediment entrapment facilities are given in Table C-2 and design criteria are described in Section 4.3 of the *Manual*. All runoff leaving a disturbed area shall pass through at least one sediment entrapment facility before it exits the site.

P. **Working Within or Crossing a Waterway**. Construction vehicles shall be kept out of waterways to the maximum extent practicable. Where an actively-flowing watercourse is be crossed regularly by construction vehicles, a temporary stream crossing or channel diversion shall be provided.

Q. **Outlet Protection**. The outlets of temporary slope drains, culverts, sediment traps, and sediment basins shall be protected from erosion and scour.

R. **Inlet Protection.** All storm sewer inlets made operable during construction shall have sediment entrapment facilities installed to prevent sediment-laden runoff from entering the inlet.

S. **Chemicals, Oils and Material Storage**. Areas used for storage of chemicals,

petroleum-based products and waste materials, including solid and liquid waste, shall be designed to prevent discharge of these materials in the runoff from a construction site.

T. **Disposition of Temporary Measures**. All temporary erosion and sediment control measures shall be removed within 30 days after final stabilization is achieved, or after the temporary measures are no longer needed, whichever occurs earliest, or as authorized by the Director of Public Works.

U. **Maintenance**. All temporary and permanent erosion and sediment control practices shall be maintained and repaired by the owner during the construction phase as needed to assure continued performance of their intended function. All facilities shall be inspected and replaced if necessary, following each precipitation or snowmelt event that results in runoff.